

**Abamectin / Fluazuron Formulation**

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
Date of first issue: 07/12/2016

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**SECTION 1. IDENTIFICATION**

Product name : Abamectin / Fluazuron Formulation

**Manufacturer or supplier's details**

Company name of supplier : Merck & Co., Inc  
Address : 126 E. Lincoln Avenue  
Rahway, New Jersey U.S.A. 07065  
Telephone : 908-740-4000  
Emergency telephone : 1-908-423-6000  
E-mail address : EHSDATASTEWARD@merck.com

**Recommended use of the chemical and restrictions on use**

Recommended use : Veterinary product

Restrictions on use : Not applicable

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**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Flammable liquids : Category 3  
Acute toxicity (Oral) : Category 4  
Acute toxicity (Inhalation) : Category 4  
Skin irritation : Category 2  
Eye irritation : Category 2A  
Skin sensitization : Category 1  
Reproductive toxicity : Category 1B  
Specific target organ toxicity - single exposure : Category 3  
Specific target organ toxicity - repeated exposure (Oral) : Category 1 (Central nervous system)  
Specific target organ toxicity - repeated exposure : Category 2 (Central nervous system)

**GHS label elements**

Hazard pictograms :   

Signal Word : Danger

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**Abamectin / Fluazuron Formulation**

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
Date of first issue: 07/12/2016

---

Hazard Statements : H226 Flammable liquid and vapor.  
H302 + H332 Harmful if swallowed or if inhaled.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H336 May cause drowsiness or dizziness.  
H360Df May damage the unborn child. Suspected of damaging fertility.  
H372 Causes damage to organs (Central nervous system) through prolonged or repeated exposure if swallowed.  
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure.

Precautionary Statements : **Prevention:**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P210 Keep away from heat, sparks, open flame and hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P241 Use explosion-proof electrical, ventilating and lighting equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P260 Do not breathe mist or vapors.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P280 Wear protective gloves, protective clothing, eye protection and face protection.

**Response:**

P301 + P312 + P330 IF SWALLOWED: Call a doctor if you feel unwell. Rinse mouth.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical attention.  
P333 + P313 If skin irritation or rash occurs: Get medical attention.  
P337 + P313 If eye irritation persists: Get medical attention.  
P362 + P364 Take off contaminated clothing and wash it before reuse.

**Storage:**

P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.

## Abamectin / Fluazuron Formulation

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
 Date of first issue: 07/12/2016

**Disposal:**

P501 Dispose of contents and container to an approved waste disposal plant.

**Other hazards**

Vapors may form explosive mixture with air.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Components**

Chemical name	CAS-No.	Concentration (% w/w)
Propan-2-ol	67-63-0	>= 30 - < 50
N-Methyl-2-pyrrolidone	872-50-4	>= 30 - < 50
Fluazuron	86811-58-7	>= 1 - < 5
abamectin (combination of avermectin B1a and avermectin B1b) (ISO)	71751-41-2	>= 1 - < 5
7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate	2386-87-0	>= 1 - < 5

Actual concentration is withheld as a trade secret

**SECTION 4. FIRST AID MEASURES**

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
 When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.  
 If not breathing, give artificial respiration.  
 If breathing is difficult, give oxygen.  
 Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
 Get medical attention.  
 Wash clothing before reuse.  
 Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.  
 If easy to do, remove contact lens, if worn.  
 Get medical attention.
- If swallowed : If swallowed, DO NOT induce vomiting.  
 Get medical attention.  
 Rinse mouth thoroughly with water.  
 Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed or if inhaled.  
 Causes skin irritation.  
 May cause an allergic skin reaction.  
 Causes serious eye irritation.  
 May cause respiratory irritation.

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

---

May cause drowsiness or dizziness.  
 May damage the unborn child. Suspected of damaging fertility.  
 Causes damage to organs through prolonged or repeated exposure if swallowed.  
 May cause damage to organs through prolonged or repeated exposure.

Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician : Treat symptomatically and supportively.

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### SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water spray  
 Alcohol-resistant foam  
 Carbon dioxide (CO<sub>2</sub>)  
 Dry chemical

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire fighting : Do not use a solid water stream as it may scatter and spread fire.  
 Flash back possible over considerable distance.  
 Vapors may form explosive mixtures with air.  
 Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Carbon oxides  
 Nitrogen oxides (NO<sub>x</sub>)  
 Chlorine compounds  
 Fluorine compounds

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
 Use water spray to cool unopened containers.  
 Remove undamaged containers from fire area if it is safe to do so.  
 Evacuate area.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.  
 Use personal protective equipment.

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### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition.  
 Use personal protective equipment.  
 Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions : Avoid release to the environment.  
 Prevent further leakage or spillage if safe to do so.  
 Prevent spreading over a wide area (e.g., by containment or oil barriers).  
 Retain and dispose of contaminated wash water.  
 Local authorities should be advised if significant spillages cannot be contained.

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

---

Methods and materials for containment and cleaning up : Non-sparking tools should be used.  
Soak up with inert absorbent material.  
Suppress (knock down) gases/vapors/mists with a water spray jet.  
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

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### SECTION 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.  
Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling : Do not get on skin or clothing.  
Do not breathe mist or vapors.  
Do not swallow.  
Do not get in eyes.  
Wash skin thoroughly after handling.  
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
Non-sparking tools should be used.  
Keep container tightly closed.  
Already sensitized individuals, and those susceptible to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitizers.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Take precautionary measures against static discharges.  
Do not eat, drink or smoke when using this product.  
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Keep in properly labeled containers.  
Store locked up.  
Keep tightly closed.  
Keep in a cool, well-ventilated place.  
Store in accordance with the particular national regulations.  
Keep away from heat and sources of ignition.

Materials to avoid : Do not store with the following product types:  
Strong oxidizing agents  
Self-reactive substances and mixtures

## Abamectin / Fluazuron Formulation

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
 Date of first issue: 07/12/2016

Organic peroxides  
 Flammable solids  
 Pyrophoric liquids  
 Pyrophoric solids  
 Self-heating substances and mixtures  
 Substances and mixtures which in contact with water emit flammable gases  
 Explosives  
 Gases  
 Very acutely toxic substances and mixtures

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Propan-2-ol	67-63-0	TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
		ST	500 ppm 1,225 mg/m <sup>3</sup>	NIOSH REL
		TWA	400 ppm 980 mg/m <sup>3</sup>	NIOSH REL
		TWA	400 ppm 980 mg/m <sup>3</sup>	OSHA Z-1
N-Methyl-2-pyrrolidone	872-50-4	TWA	15 ppm 60 mg/m <sup>3</sup>	US WEEL
		STEL	30 ppm 120 mg/m <sup>3</sup>	US WEEL
Fluazuron	86811-58-7	TWA	60 µg/m <sup>3</sup> (OEB 3)	Internal
		Wipe limit	600 µg/ 100cm <sup>2</sup>	Internal
abamectin (combination of avermectin B1a and avermectin B1b) (ISO)	71751-41-2	TWA	15 µg/m <sup>3</sup> (OEB 3)	Internal
		Wipe limit	150 µg/100 cm <sup>2</sup>	Internal

## Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
N-Methyl-2-pyrrolidone	872-50-4	5-Hydroxy-N-methyl-2-pyrrolidone	Urine	End of shift (As soon as possible after exposure ceases)	100 mg/l	ACGIH BEI
Propan-2-ol	67-63-0	Acetone	Urine	End of shift at end of work-week	40 mg/l	ACGIH BEI

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

---

- Engineering measures** : Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).  
All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.  
Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).  
Minimize open handling.  
  
Use explosion-proof electrical, ventilating and lighting equipment.
- Personal protective equipment**
- Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
- Hand protection
- Material : Chemical-resistant gloves
- Remarks : Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.
- Eye protection : Wear safety glasses with side shields or goggles.  
If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.  
Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.
- Skin and body protection : Work uniform or laboratory coat.  
Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.  
Use appropriate degowning techniques to remove potentially contaminated clothing.
- Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.  
When using do not eat, drink or smoke.  
Contaminated work clothing should not be allowed out of the workplace.  
Wash contaminated clothing before re-use.  
The effective operation of a facility should include review of

**Abamectin / Fluazuron Formulation**

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
Date of first issue: 07/12/2016

---

engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	:	liquid
Color	:	No data available
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	82 °F / 28 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Density	:	No data available
Solubility(ies) Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	



## Abamectin / Fluazuron Formulation

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
Date of first issue: 07/12/2016

---

Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : No data available

Particle size : Not applicable

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Flammable liquid and vapor.  
Vapors may form explosive mixture with air.  
Can react with strong oxidizing agents.

Conditions to avoid : Heat, flames and sparks.

Incompatible materials : Oxidizing agents

Hazardous decomposition products : No hazardous decomposition products are known.

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**SECTION 11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

Inhalation  
Skin contact  
Ingestion  
Eye contact

**Acute toxicity**

Harmful if swallowed or if inhaled.

**Product:**

Acute oral toxicity : Acute toxicity estimate: 1,824 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 2.06 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg  
Method: Calculation method

**Components:****Propan-2-ol:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 25 mg/l  
Exposure time: 6 h

---

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

---

Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

### **N-Methyl-2-pyrrolidone:**

Acute oral toxicity : LD50 (Rat): 4,150 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.1 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg

### **Fluazuron:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 6.0 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402

### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Acute oral toxicity : LD50 (Rat): 24 mg/kg  
LD50 (Mouse): 10 mg/kg  
LDLo (Monkey): 24 mg/kg  
Symptoms: Dilatation of the pupil

Acute inhalation toxicity : LC50 (Rat): 0.023 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): 330 mg/kg  
LD50 (Rabbit): 2,000 mg/kg

### **7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:**

Acute oral toxicity : LD50 (Rat, male): 2,959 - 5,000 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat):  $\geq$  5.19 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 436  
Assessment: The substance or mixture has no acute inhalation toxicity

**Abamectin / Fluazuron Formulation**

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
Date of first issue: 07/12/2016

---

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation**

Causes skin irritation.

**Components:****Propan-2-ol:**

Species : Rabbit  
Result : No skin irritation

**N-Methyl-2-pyrrolidone:**

Result : Skin irritation

**Fluazuron:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Species : Rabbit  
Result : No skin irritation

**7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

**Serious eye damage/eye irritation**

Causes serious eye irritation.

**Components:****Propan-2-ol:**

Species : Rabbit  
Result : Irritation to eyes, reversing within 21 days

**N-Methyl-2-pyrrolidone:**

Species : Rabbit  
Result : Irritation to eyes, reversing within 21 days

**Fluazuron:**

Species : Rabbit  
Result : Mild eye irritation  
Method : OECD Test Guideline 405

**Abamectin / Fluazuron Formulation**

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
Date of first issue: 07/12/2016

---

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Species : Rabbit  
Result : Mild eye irritation

**7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

**Respiratory or skin sensitization****Skin sensitization**

May cause an allergic skin reaction.

**Respiratory sensitization**

Not classified based on available information.

**Components:****Propan-2-ol:**

Test Type : Buehler Test  
Routes of exposure : Skin contact  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : negative

**N-Methyl-2-pyrrolidone:**

Test Type : Local lymph node assay (LLNA)  
Routes of exposure : Skin contact  
Species : Mouse  
Method : OECD Test Guideline 429  
Result : negative  
Remarks : Based on data from similar materials

**Fluazuron:**

Routes of exposure : Skin contact  
Species : Guinea pig  
Result : negative

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Test Type : Maximization Test  
Routes of exposure : Skin contact  
Result : Not a skin sensitizer.

**7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:**

Test Type : Maximization Test  
Routes of exposure : Skin contact  
Species : Guinea pig  
Result : positive

Assessment : Probability or evidence of skin sensitization in humans

**Abamectin / Fluazuron Formulation**

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
Date of first issue: 07/12/2016

---

**Germ cell mutagenicity**

Not classified based on available information.

**Components:****Propan-2-ol:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo  
cytogenetic assay)  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: negative

**N-Methyl-2-pyrrolidone:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

Test Type: DNA damage and repair, unscheduled DNA syn-  
thesis in mammalian cells (in vitro)  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo  
cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative

Test Type: Mutagenicity (in vivo mammalian bone-marrow  
cytogenetic test, chromosomal analysis)  
Species: Hamster  
Application Route: Ingestion  
Method: OECD Test Guideline 475  
Result: negative

**Fluazuron:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Test Type: DNA Repair  
Result: negative

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

---

Test Type: In vitro mammalian cell gene mutation test  
Result: negative

Genotoxicity in vivo : Test Type: Cytogenetic assay  
Species: Hamster  
Result: equivocal

### abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Test system: Chinese hamster lung cells  
Result: negative

Test Type: Alkaline elution assay  
Result: negative

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: negative

### 7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test  
Result: positive

Genotoxicity in vivo : Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 486  
Result: negative

Test Type: Micronucleus test  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: negative

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

### Carcinogenicity

Not classified based on available information.

### Components:

#### Propan-2-ol:

Species : Rat  
Application Route : inhalation (vapor)  
Exposure time : 104 weeks  
Method : OECD Test Guideline 451

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

---

Result : negative

### **N-Methyl-2-pyrrolidone:**

Species : Rat  
 Application Route : Ingestion  
 Exposure time : 2 Years  
 Result : negative

Species : Rat  
 Application Route : inhalation (vapor)  
 Exposure time : 2 Years  
 Result : negative

### **Fluazuron:**

Species : Rat  
 Application Route : Ingestion  
 Exposure time : 2 Years  
 Method : OECD Test Guideline 453  
 Result : negative

Species : Mouse  
 Application Route : Ingestion  
 Exposure time : 2 Years  
 Result : negative

### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Species : Rat  
 Application Route : Oral  
 Exposure time : 105 weeks  
 Result : negative

Species : Mouse  
 Application Route : Oral  
 Exposure time : 93 weeks  
 Result : negative

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### **Reproductive toxicity**

May damage the unborn child. Suspected of damaging fertility.

### **Components:**

#### **Propan-2-ol:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study

**Abamectin / Fluazuron Formulation**

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
Date of first issue: 07/12/2016

---

Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

**N-Methyl-2-pyrrolidone:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 416  
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: positive

Test Type: Fertility/early embryonic development  
Species: Rat  
Application Route: inhalation (vapor)  
Result: positive

Test Type: Embryo-fetal development  
Species: Rabbit  
Application Route: Ingestion  
Result: positive

Reproductive toxicity - Assessment : Clear evidence of adverse effects on development, based on animal experiments.

**Fluazuron:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

Test Type: Embryo-fetal development  
Species: Rabbit  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: negative

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**



## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

---

- Effects on fertility : Test Type: Fertility  
Species: Rat, male  
Application Route: Oral  
Result: Effects on fertility.
- Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Oral  
Early Embryonic Development: NOAEL: 0.12 mg/kg body weight  
Result: Fetotoxicity.
- Effects on fetal development : Test Type: Embryo-fetal development  
Species: Mouse  
Application Route: Oral  
General Toxicity Maternal: NOAEL: 0.05 mg/kg body weight  
Developmental Toxicity: NOAEL: 0.2 mg/kg body weight  
Result: Cleft palate  
Remarks: Adverse developmental effects were observed
- Test Type: Embryo-fetal development  
Species: Rabbit  
Application Route: Oral  
Developmental Toxicity: LOAEL: 2 mg/kg body weight  
Result: Cleft palate, Teratogenic effects., Reduced embryonic survival  
Remarks: Adverse developmental effects were observed
- Test Type: Development  
Species: Rat  
Application Route: Oral  
Developmental Toxicity: LOAEL: 1.6 mg/kg body weight  
Result: Teratogenic effects.
- Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, based on animal experiments., Some evidence of adverse effects on development, based on animal experiments.

### 7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:

- Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: negative

### STOT-single exposure

May cause respiratory irritation.  
May cause drowsiness or dizziness.

### Components:

#### Propan-2-ol:

- Assessment : May cause drowsiness or dizziness.

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

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### **N-Methyl-2-pyrrolidone:**

Assessment : May cause respiratory irritation.

### **STOT-repeated exposure**

Causes damage to organs (Central nervous system) through prolonged or repeated exposure if swallowed.

May cause damage to organs (Central nervous system) through prolonged or repeated exposure.

### **Components:**

#### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Routes of exposure : Ingestion  
 Target Organs : Central nervous system  
 Assessment : Causes damage to organs through prolonged or repeated exposure.

### **Repeated dose toxicity**

#### **Components:**

#### **Propan-2-ol:**

Species : Rat  
 NOAEL : 12.5 mg/l  
 Application Route : inhalation (vapor)  
 Exposure time : 104 Weeks

#### **N-Methyl-2-pyrrolidone:**

Species : Rat, male  
 NOAEL : 169 mg/kg  
 LOAEL : 433 mg/kg  
 Application Route : Ingestion  
 Exposure time : 90 Days  
 Method : OECD Test Guideline 408

Species : Rat  
 NOAEL : 0.5 mg/l  
 LOAEL : 1 mg/l  
 Application Route : inhalation (dust/mist/fume)  
 Exposure time : 96 Days  
 Method : OECD Test Guideline 413

Species : Rabbit  
 NOAEL : 826 mg/kg  
 LOAEL : 1,653 mg/kg  
 Application Route : Skin contact  
 Exposure time : 20 Days

#### **Fluazuron:**

Species : Rat  
 LOAEL : 240 mg/kg  
 Application Route : Ingestion

**Abamectin / Fluazuron Formulation**

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
Date of first issue: 07/12/2016

---

Exposure time : 13 Weeks  
Target Organs : Liver, Thyroid, Pituitary gland

Species : Rat  
NOAEL : 10 mg/kg  
LOAEL : 100 mg/kg  
Application Route : Skin contact  
Exposure time : 3 Weeks

Species : Dog  
NOAEL : 7.5 mg/kg  
LOAEL : 110 mg/kg  
Application Route : Ingestion  
Exposure time : 52 Weeks  
Target Organs : Liver

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Species : Rat  
NOAEL : 1.5 mg/kg  
Application Route : Oral  
Exposure time : 24 Months  
Target Organs : Central nervous system  
Symptoms : Tremors, ataxia

Species : Mouse  
NOAEL : 4.0 mg/kg  
Application Route : Oral  
Exposure time : 24 Months  
Target Organs : Central nervous system  
Symptoms : Tremors, ataxia

Species : Dog  
NOAEL : 0.25 mg/kg  
LOAEL : 0.5 mg/kg  
Application Route : Oral  
Exposure time : 53 Weeks  
Target Organs : Central nervous system  
Symptoms : Tremors, weight loss  
Remarks : mortality observed

Species : Monkey  
NOAEL : 1.0 mg/kg  
Application Route : Oral  
Exposure time : 14 Weeks  
Target Organs : Central nervous system

**Aspiration toxicity**

Not classified based on available information.

**Experience with human exposure****Components:****N-Methyl-2-pyrrolidone:**

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

Skin contact : Symptoms: Skin irritation

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Ingestion : Symptoms: May cause, Tremors, Diarrhea, central nervous system effects, Salivation, tearing

### SECTION 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

##### Components:

##### **Propan-2-ol:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 9,640 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l  
Exposure time: 24 h

Toxicity to microorganisms : EC50 (Pseudomonas putida): > 1,050 mg/l  
Exposure time: 16 h

##### **N-Methyl-2-pyrrolidone:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 500 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l  
Exposure time: 24 h  
Method: DIN 38412

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 600.5 mg/l  
Exposure time: 72 h

EC10 (Desmodesmus subspicatus (green algae)): 92.6 mg/l  
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 12.5 mg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC50: > 600 mg/l  
Exposure time: 30 min  
Method: ISO 8192

##### **Fluazuron:**

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): > 9.1 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia sp. (Water flea)): 0.0006 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : NOEC (Raphidocelis subcapitata (freshwater green alga)): 27.9 mg/l  
Exposure time: 72 h

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

---

### abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 3.2 µg/l  
Exposure time: 96 h
- LC50 (Lepomis macrochirus (Bluegill sunfish)): 9.6 µg/l  
Exposure time: 96 h
- LC50 (Ictalurus punctatus (channel catfish)): 24 µg/l  
Exposure time: 96 h
- LC50 (Cyprinus carpio (Carp)): 42 µg/l  
Exposure time: 96 h
- LC50 (Cyprinodon variegatus (sheepshead minnow)): 15 µg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Americamysis): 0.022 µg/l  
Exposure time: 96 h
- EC50 (Daphnia magna (Water flea)): 0.34 µg/l  
Exposure time: 48 h
- Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 100 mg/l  
Exposure time: 72 h
- Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.52 µg/l  
Exposure time: 32 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.03 µg/l  
Exposure time: 21 d
- NOEC (Mysidopsis bahia (opossum shrimp)): 0.0035 µg/l  
Exposure time: 28 d
- Toxicity to microorganisms : EC50: > 1,000 mg/l  
Exposure time: 3 h  
Test Type: Respiration inhibition

### 7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 24 µg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 40 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): > 110 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- NOEC (Selenastrum capricornutum (green algae)): 30 mg/l

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

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Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC10 (Natural microorganism): 409 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

### Persistence and degradability

#### Components:

##### **Propan-2-ol:**

Biodegradability : Result: rapidly degradable  
BOD/COD : BOD: 1.19 (BOD5)COD: 2.23BOD/COD: 53 %

##### **N-Methyl-2-pyrrolidone:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 73 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Stability in water : Hydrolysis: 50 %(< 12 h)

##### **7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:**

Biodegradability : Biodegradation: 71 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

Stability in water : Degradation half life (DT50): 2 d

### Bioaccumulative potential

#### Components:

##### **Propan-2-ol:**

Partition coefficient: n-octanol/water : log Pow: 0.05

##### **N-Methyl-2-pyrrolidone:**

Partition coefficient: n-octanol/water : log Pow: -0.46  
Method: OECD Test Guideline 107

##### **Fluazuron:**

Partition coefficient: n-octanol/water : log Pow: 5.1

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Bioaccumulation : Bioconcentration factor (BCF): 52

Partition coefficient: n- : log Pow: 4

## Abamectin / Fluazuron Formulation

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
 Date of first issue: 07/12/2016

octanol/water

**7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:**

Partition coefficient: n-octanol/water : log Pow: 1.34

**Mobility in soil****Components:****abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Distribution among environmental compartments : log Koc: > 3.6

**Other adverse effects**

No data available

**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.  
 Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
 Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.  
 If not otherwise specified: Dispose of as unused product.

**SECTION 14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

UN number : UN 1993  
 Proper shipping name : FLAMMABLE LIQUID, N.O.S.  
 (Propan-2-ol)  
 Class : 3  
 Packing group : III  
 Labels : 3

**IATA-DGR**

UN/ID No. : UN 1993  
 Proper shipping name : Flammable liquid, n.o.s.  
 (Propan-2-ol)  
 Class : 3  
 Packing group : III  
 Labels : Flammable Liquids  
 Packing instruction (cargo aircraft) : 366  
 Packing instruction (passenger aircraft) : 355

**IMDG-Code**

UN number : UN 1993

## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

Proper shipping name : FLAMMABLE LIQUID, N.O.S.  
(Propan-2-ol, Fluazuron, abamectin (combination of avermectin B1a and avermectin B1b) (ISO))

Class : 3

Packing group : III

Labels : 3

EmS Code : F-E, S-E

Marine pollutant : yes

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

### Domestic regulation

#### 49 CFR

UN/ID/NA number : UN 1993

Proper shipping name : Flammable liquids, n.o.s.  
(Propan-2-ol)

Class : 3

Packing group : III

Labels : FLAMMABLE LIQUID

ERG Code : 128

Marine pollutant : yes(Fluazuron, abamectin (combination of avermectin B1a and avermectin B1b) (ISO))

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

## SECTION 15. REGULATORY INFORMATION

### CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
Acute toxicity (any route of exposure)  
Respiratory or skin sensitization  
Reproductive toxicity  
Specific target organ toxicity (single or repeated exposure)  
Skin corrosion or irritation  
Serious eye damage or eye irritation

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Propan-2-ol	67-63-0	>= 30 - < 50 %
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## Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

---

N-Methyl-2-pyrrolidone	872-50-4	>= 30 - < 50 %
abamectin (combination of avermectin B1a and avermectin B1b) (ISO)	71751-41-2	>= 1 - < 5 %

### US State Regulations

#### Pennsylvania Right To Know

Propan-2-ol	67-63-0
N-Methyl-2-pyrrolidone	872-50-4
Poly[oxy(methyl-1,2-ethanediyl)], $\alpha$ -(1-oxotetradecyl)- $\omega$ -(phenylmethoxy)-	642443-86-5

#### California Prop. 65

WARNING: This product can expose you to chemicals including N-Methyl-2-pyrrolidone, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

#### California List of Hazardous Substances

Propan-2-ol	67-63-0
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#### California Permissible Exposure Limits for Chemical Contaminants

Propan-2-ol	67-63-0
N-Methyl-2-pyrrolidone	872-50-4

#### The ingredients of this product are reported in the following inventories:

AICS	:	not determined
DSL	:	not determined
IECSC	:	not determined

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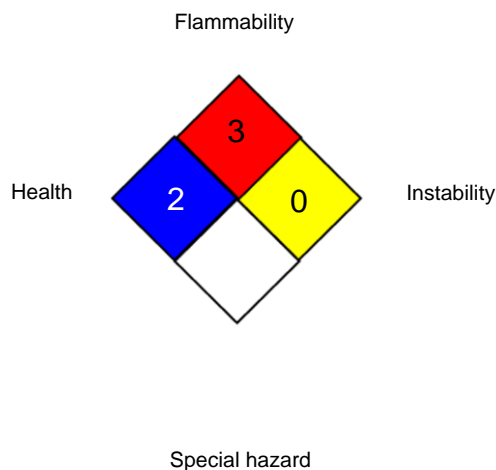
## SECTION 16. OTHER INFORMATION

### Further information

## Abamectin / Fluazuron Formulation

Version 8.7      Revision Date: 10/01/2022      SDS Number: 800410-00021      Date of last issue: 04/09/2022  
 Date of first issue: 07/12/2016

## NFPA 704:



## HMIS® IV:

HEALTH	*	3
FLAMMABILITY		3
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

## Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA Z-1 / TWA	:	8-hour time weighted average
US WEEL / TWA	:	8-hr TWA
US WEEL / STEL	:	Short-Term TWA

AiIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Pre-

**Abamectin / Fluazuron Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 04/09/2022
8.7	10/01/2022	800410-00021	Date of first issue: 07/12/2016

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vention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 10/01/2022

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8